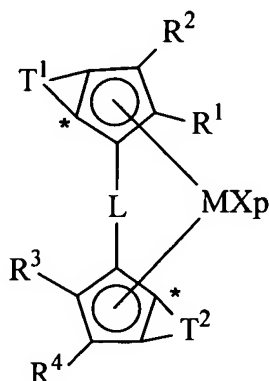


## AMENDMENTS TO THE CLAIMS

1. (currently amended) A process for preparing 1-butene copolymers comprising contacting 1-butene and at least one alpha olefin of formula  $\text{CH}_2=\text{CHZ}$ , wherein Z is a  $\text{C}_3\text{-C}_{20}$  hydrocarbon group under polymerization conditions, in the presence of a catalyst system obtained by contacting:

a) at least a metallocene compound of formula (I) in the racemic form:



(I)

wherein

M is a transition metal belonging to group 3, 4, 5, 6 or to the lanthanide or actinide groups in the Periodic Table of the Elements;

p is an integer from 0 to 3, being equal to the formal oxidation state of the metal M minus 2;

X, equal to or different from each other, are hydrogen atoms, halogen atoms, or R, OR,  $\text{OSO}_2\text{CF}_3$ ,  $\text{OCOR}$ ,  $\text{SR}$ ,  $\text{NR}_2$  or  $\text{PR}_2$  groups, wherein R is a linear or branched, saturated or unsaturated  $\text{C}_1\text{-C}_{20}$  alkyl,  $\text{C}_3\text{-C}_{20}$  cycloalkyl,  $\text{C}_6\text{-C}_{20}$  aryl,  $\text{C}_7\text{-C}_{20}$  alkylaryl or  $\text{C}_7\text{-C}_{20}$  arylalkyl radical, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two X can optionally form a substituted or unsubstituted butadienyl radical or a  $\text{OR}'\text{O}$  group wherein R' is a divalent radical selected from  $\text{C}_1\text{-C}_{20}$  alkylidene,  $\text{C}_6\text{-C}_{40}$  arylidene,  $\text{C}_7\text{-C}_{40}$  alkylarylidene and  $\text{C}_7\text{-C}_{40}$  arylalkylidene radicals;

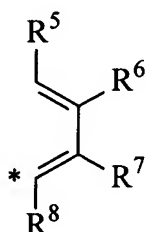
L is a divalent bridging group selected from  $\text{C}_1\text{-C}_{20}$  alkylidene,  $\text{C}_3\text{-C}_{20}$  cycloalkylidene,  $\text{C}_6\text{-C}_{20}$  arylidene,  $\text{C}_7\text{-C}_{20}$  alkylarylidene, and  $\text{C}_7\text{-C}_{20}$  arylalkylidene radicals optionally

containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and silylidene radical containing up to 5 silicon atoms;

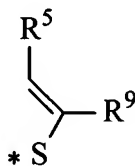
$R^1$  and  $R^3$ , equal to or different from each other, are linear or branched, saturated or unsaturated  $C_1$ - $C_{20}$  alkyl,  $C_3$ - $C_{20}$  cycloalkyl,  $C_6$ - $C_{20}$  aryl,  $C_7$ - $C_{20}$  alkylaryl or  $C_7$ - $C_{20}$  arylalkyl radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

$R^2$  and  $R^4$ , equal to or different from each other, are hydrogen atoms or linear or branched, saturated or unsaturated  $C_1$ - $C_{20}$  alkyl,  $C_3$ - $C_{20}$  cycloalkyl,  $C_6$ - $C_{20}$  aryl,  $C_7$ - $C_{20}$  alkylaryl or  $C_7$ - $C_{20}$  arylalkyl radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

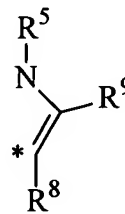
$T^1$  and  $T^2$ , equal to or different from each other are a moiety of formula (II), (III) or (IV):



(II)



(III)



(IV)

wherein the atom marked with the \* is bound to the atom marked with the same symbol bonds in formula (I);

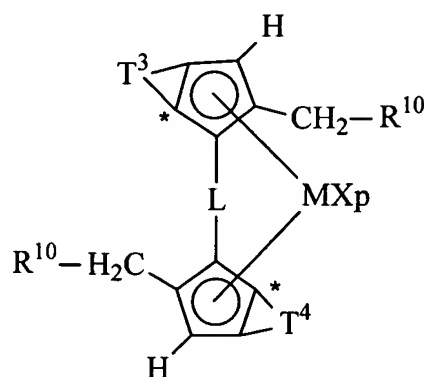
$R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$  and  $R^9$ , equal to or different from each other, are hydrogen atoms, or a linear or branched saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl,  $C_3$ - $C_{20}$ -cycloalkyl,  $C_6$ - $C_{40}$ -aryl,  $C_7$ - $C_{40}$ -alkylaryl,  $C_7$ - $C_{40}$ -arylalkyl radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

$R^6$  and  $R^7$  can also join to form a saturated or unsaturated condensed 5 to 7 membered ring optionally containing heteroatoms belonging to groups 13-16 of the Periodic Table of the Elements; and

b) at least an alumoxane or a compound that forms an alkylmetallocene cation, wherein the 1-butene copolymers are isotactic and comprise an alpha olefin content of at most 30% by mol, and in the moiety of formula (II),  $R^5$  and  $R^8$  are hydrogen.

- 2 (previously presented) The process according to claim 1 wherein the catalyst system further comprises an organo aluminum compound.

- 3 (previously presented) The process according to claim 1 wherein in the compound of formula (I), M is titanium, zirconium or hafnium; X is a hydrogen atom, a halogen atom or a R group; L is selected from the group consisting of Si(CH<sub>3</sub>)<sub>2</sub>, SiPh<sub>2</sub>, SiPhMe, SiMe(SiMe<sub>3</sub>), CH<sub>2</sub>, (CH<sub>2</sub>)<sub>2</sub>, (CH<sub>2</sub>)<sub>3</sub> and C(CH<sub>3</sub>)<sub>2</sub> and R<sup>9</sup> is a hydrogen atom or a linear or branched saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical.
- 4 (previously presented) The process according to claim 1 wherein the metallocene compound has formula (V):

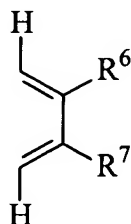


(V)

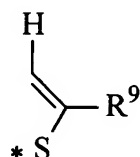
wherein

R<sup>10</sup>, equal to or different from each other, are hydrogen atoms, or linear or branched saturated or unsaturated C<sub>1</sub>-C<sub>19</sub>-alkyl, C<sub>3</sub>-C<sub>19</sub>-cycloalkyl, C<sub>6</sub>-C<sub>19</sub>-aryl, C<sub>7</sub>-C<sub>19</sub>-alkylaryl, C<sub>7</sub>-C<sub>19</sub>-arylalkyl radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

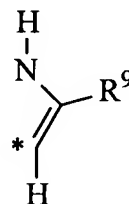
T<sup>3</sup> and T<sup>4</sup>, equal to or different from each other are moieties of formula (Va), (Vb) or (Vc):



(Va)



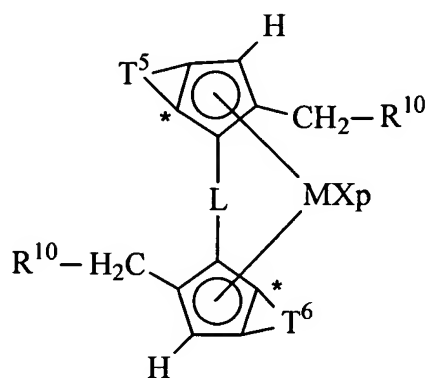
(Vb)



(Vc)

wherein the atom marked with the symbol \* is bound to the atom marked with the same symbol in formula (V).

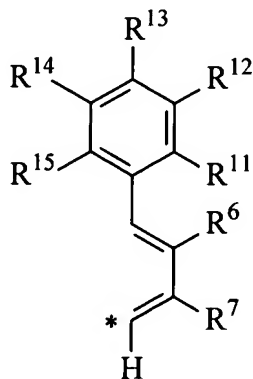
- 5 (previously presented) The process according to claim 4 wherein in the compound of formula (V),  $R^{10}$  is a hydrogen atom or a  $C_1$ - $C_{19}$ -alkyl radical;  $R^6$ ,  $R^7$  are hydrogen atoms or linear or branched saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl radicals, or they form a saturated or unsaturated 5 or 6 membered ring optionally containing heteroatoms belonging to groups 13-16 of the Periodic Table of the Elements; and  $R^9$  is a linear or branched saturated or unsaturated  $C_1$ - $C_{20}$ -alkyl radical.
- 6 (previously presented) The process according to claim 1 wherein the metallocene compound has formula (VI):



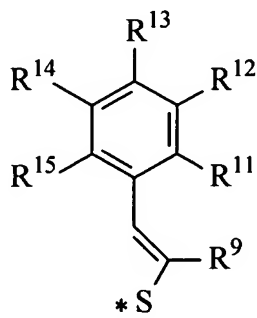
(VI)

wherein  $R^{10}$ , equal to or different from each other, are hydrogen atoms, or linear or branched saturated or unsaturated  $C_1$ - $C_{19}$ -alkyl,  $C_3$ - $C_{19}$ -cycloalkyl,  $C_6$ - $C_{19}$ -aryl,  $C_7$ - $C_{19}$ -alkylaryl,  $C_7$ - $C_{19}$ -arylalkyl radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

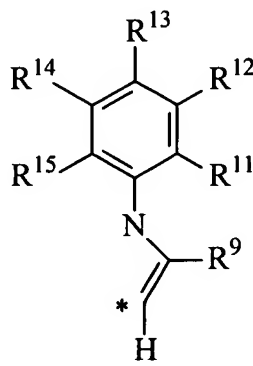
$T^5$  and  $T^6$ , equal to or different from each other are a moiety of formula (VIa), (VIb) or (VI c):



(VIa)



(VIb)



(VIc)

wherein the atom marked with the symbol \* is bound to the atom marked with the same symbol in formula (VI);

R<sup>11</sup>, R<sup>12</sup>, R<sup>13</sup>, R<sup>14</sup>, and R<sup>15</sup>, equal to or different from each other, are hydrogen atoms or linear or branched saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl, C<sub>3</sub>-C<sub>20</sub>-cycloalkyl, C<sub>6</sub>-C<sub>20</sub>-aryl, C<sub>7</sub>-C<sub>20</sub>-alkylaryl, C<sub>7</sub>-C<sub>20</sub>-arylalkyl radicals, optionally containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, or two adjacent groups form together a saturated or unsaturated condensed 5 or 6 membered ring optionally containing heteroatoms belonging to groups 13-16 of the Periodic Table of the Elements.

- 7 (previously presented) The process according to claim 6 wherein R<sup>6</sup> and R<sup>7</sup> are hydrogen atoms or linear or branched saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radicals; or they form a saturated or unsaturated 5 or 6 membered ring optionally containing heteroatoms belonging to groups 13-16 of the Periodic Table of the Elements; R<sup>9</sup> is a hydrogen atom or a linear or branched saturated or unsaturated C<sub>1</sub>-C<sub>20</sub>-alkyl radical; R<sup>11</sup> is a C<sub>1</sub>-C<sub>20</sub>-alkyl radical; R<sup>14</sup> is a hydrogen atom or a C<sub>1</sub>-C<sub>20</sub>-alkyl radical; and R<sup>12</sup>, R<sup>13</sup> and R<sup>15</sup> are hydrogen atoms.
- 8 (previously presented) The process according to claim 1 wherein the alpha-olefin is selected from 1-pentene, 4-methyl-1-pentene, 1-hexene, 1-octene, 4,6-dimethyl-1-heptene, 1-decene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadecene and 1-eicosene.
- 9 (previously presented) The process according to claim 8 wherein the alpha-olefin is selected from 1-pentene, 1-hexene and 1-octene.
- 10 (previously presented) The process according to claim 1 wherein the content of the at least one alpha olefin derived units in the copolymer is from 2% to 20% by mol.

Claims 11-17 canceled

18. (previously presented) The process according to claim 8 wherein the alpha-olefin is selected from 4-methyl-1-pentene, 4,6-dimethyl-1-heptene, 1-decene, 1-tetradecene, 1-hexadecene, 1-octadecene and 1-eicosene.